Economic Modelling 54 (2016) 463–468

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/ecmod

Can monetary policy fully stabilize pure demand shocks in a monetary union with a fiscal leader?

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ARTICLE INFO

Article history:
Accepted 29 January 2016
Available online xxxx

Keywords:
Monetary policy
Demand shock stabilization
Monetary union
Fiscal strategic advantage
Fiscal policies' divergence

ABSTRACT

We consider the ability of monetary policy to fully stabilize pure demand shocks in a monetary union with strategically acting fiscal authorities. We show that when one national fiscal authority enjoys a strategic advantage over the other and fiscal policy can directly affect inflation, monetary policy cannot fully stabilize pure demand shocks at the union level, unless they are common. Moreover, we characterize a situation where country-specific fiscal policies diverge, being counter-cyclical for one country and pro-cyclical for the other, for high enough values of the direct effect of fiscal policy on the inflation parameter. The coordination of national fiscal policies becomes desirable for the union central bank.

1. Introduction

The literature on strategic interactions in monetary unions based on static representations of the New Keynesian model shows that monetary policy can fully stabilize pure demand shocks at the union level (e.g., Andersen, 2005, 2008; Ferre, 2005, 2008, 2012; Uhlig, 2003; Von Hagen and Mundschenk, 2003; Bofinger and Mayer, 2007; Della Posta and De Bonis, 2009; Flotho, 2012; Foresti, 2015). The focus of this literature is typically on the fiscal–monetary policy mix within the monetary union (see Beetsma and Debrun, 2004) where cyclical stabilization is defined as output gap and inflation stabilization (Dixit and Lambertini, 2001). Pure demand shocks affect only the aggregate demand side of the economy and they are not correlated with supply shocks, which affect the Phillips curve (PC) equation. This ability of monetary policy to fully stabilize pure demand shocks at the union level holds regardless of the structure of the game or the degree of fiscal policies' centralization, as the common central bank directly affects the union-wide aggregate demand through the common nominal interest rate. Andersen (2005, 2008) considers the general case of shocks that can simultaneously affect both the demand and the supply side of the economy. Pure demand shocks emerge as a special case, which can be fully stabilized at the union level. The "irrelevance" of demand shocks for equilibrium outcomes is also demonstrated in a two-country micro-founded dynamic stochastic general equilibrium (DSGE) monetary union model by Beetsma and Jensen (2005).

Under particular circumstances, however, monetary policy may fail to fully stabilize pure aggregate demand shocks in a monetary union. First, the possibility of interest-rate smoothing by the central bank can make the use of the monetary instrument costly (see, e.g., Cavallari and Di Gioacchino, 2005; Lambertini and Rovelli, 2004; Oros and Zimmer, 2015). Second, aggregate demand shock stabilization may not occur when the model allows the monetary instrument to directly affect the Phillips curve. For example, Onorante (2004) assumes that both the price level and the unemployment rate directly depend on the two policy instruments (money supply and government spending), without explicitly examining transmission channels and/or interconnections.

In all above cases, however, the failure of monetary policy to stabilize pure demand shocks refers to the effectiveness of the monetary policy instrument. In this paper, we present a case where the impotency of monetary policy to fully stabilize pure (asymmetric) demand shocks at the union level relates to fiscal policy. In particular, we show that the common central bank cannot completely stabilize pure demand shocks at the union level, when fiscal policy directly affects inflation (e.g., Andersen, 2005, 2008) and the fiscal authorities do not move simultaneously. That is, we assume a two-country monetary union model, where one fiscal authority enjoys a strategic advantage over the other and acts as a leader.

The presence of a fiscal strategic advantage can be justified on unequal distribution of power among a monetary union's member-states. According to Baldwin and Wyplosz (2004, p. 87), power is defined as the ability to influence decisions. As the recent developments in the Economic and Monetary Union (EMU) in Europe show, some countries may enjoy a pivotal role in fiscal policymaking (e.g., De Grauwe and Ji, 2013; Feldstein, 2013; Wyplosz, 2014). According to

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http://dx.doi.org/10.1016/j.econmod.2016.01.027
0264-9993/

Wyplosz (2014, p. 2), "the European Commission has given the impression of being unable to reconcile deep disagreements, leaving one country, Germany, in charge of masterminding policy responses,... as the effective leader (p. 12)." Feldstein (2013, p. 435) also notes that "Germany is criticized as a hegemonic power that is trying to achieve through political and financial means what it failed to achieve in World War II." If such a model is a realistic approximation to real world, this "political hegemony" could be expressed through an informational advantage enjoyed by the leader in a fiscal leader-follower game. Moreover, strategic informational advantages may emerge in the context of a monetary union with asymmetries between the core and periphery countries, where the core countries impose the rules acting as de facto leaders (Canofari et al., 2013). Cassette et al. (2013) show that interactions between neighbor countries affect public policy decisions, where neighborhood is defined by economic leadership as well as geography The "German dominance hypothesis" is a typical example of leader and follower countries within the European Monetary System (see, Reade and Volz, 2011).

The fiscal leadership regime is considered as the appropriate time structure to capture real policymaking in the EMU (e.g., Beetsma and Bovenberg, 1998; Uhlig, 2003; Ferre, 2005, 2008, 2012; Andersen, 2005, 2008), mainly on the grounds of a stickiness argument; that is, the stickier policy authority plays first. In general, monetary policy is considered more flexible than fiscal policy, as it can always react to changes in fiscal policy. Thus, the literature typically considers two-stage games, where national fiscal authorities play simultaneously before the monetary authority. In this paper, we depart from this assumption by allowing for a fiscal strategic advantage on the part of one fiscal authority in a two-country monetary-union setting. This leads to a three-stage game among a leader fiscal authority, a follower fiscal authority, and the monetary authority. Three-stage games have been analyzed in the literature on monetary policy for the interactions among firms, trade unions, and a monetary authority in closed economies (e.g., Coricelli et al., 2006).[1] Acocella et al. (2007) build on the model of Beetsma and Bovenberg (1998) and consider a three-stage game among trade unions, national fiscal authorities, and the common central bank within a monetary union, in order to endogenize distortions on labor markets.[2]

A possible fiscal strategic advantage based on the stickiness argument on the part of one fiscal authority means that this authority is more sticky in deciding on fiscal policy. At all times, it considers the other fiscal authority's reaction to its choice of the fiscal instrument. This can be quite a realistic assumption, as in the real-world changes in fiscal policy pass through national parliaments, where possible differences in parliamentary procedures can make the decision making of some fiscal authorities stickier than others. This stickiness may reflect the lack of political consensus in a coalition government or long history of democratic accountability, among other possibilities. Decision lags in fiscal policymaking can be notoriously long as governments must decide on the budget and the specific measures (instruments) in hand. The budget must then be approved by the parliament, a process that is both time-consuming and highly political. Moreover, spending decisions must be enacted through state bureaucracy (Baldwin and Wyplosz, 2004). Those procedures might differ from country to country. A coalition government or a country with tradition in trying to achieve the largest political consensus possible, might be more sticky in deciding on fiscal policy.

The main result of our model is that pure demand shocks cannot be fully stabilized at the union level. The model, however, delivers another important result, which is the possibility of country-specific fiscal policies' divergence. In particular, we characterize a situation where one fiscal authority pursues a pro-cyclical policy while the other pursues a counter-cyclical one. The literature suggests that a simultaneous-move game among identical fiscal authorities leads to the same degree of counter-cyclicality. Allowing, however, fiscal policy to directly affect the Phillips curve equation provides the possibility for country-specific pro-cyclical fiscal policies (Debrun, 2000; Andersen, 2008). We show that a fiscal strategic advantage delivers a different degree of counter-cyclicality across fiscal authorities. In addition, the direct effect of fiscal policy on inflation can make policies to diverge. Recent evidence document country-specific fiscal policy pro-cyclicality within the EMU (Fatas and Mihov, 2010), as well as fiscal policies' divergence (Dullien and Schwarzer, 2009; Candelon et al., 2010). This latter effect is recently reported by Landmann (2014), especially for the period preceding the financial crisis and the great recession, where fiscal policy was pro-cyclical in Ireland and Greece and counter-cyclical in Italy, Spain, and the Netherlands. Similarly Dullien and Schwarzer (2009) find that fiscal policy displays a pro-cyclical behavior in Germany and Portugal. Candelon et al. (2010) find significant pro-cyclical behavior for a set of large countries, such as France, Germany, and Italy, as opposed to another set of small countries that pursue counter-cyclical discretionary fiscal policies, such as Austria, Belgium, Ireland, and the Netherlands. Pentecote and Huchet-Bourdon (2012) observe that when the member-states of a monetary union pursue diverging economic paths they can undermine the union's credibility. Both the fiscal divergence and the lack of counter-cyclicality may have rendered the euro-zone more vulnerable in the run up to the recent crisis (Benetrix and Lane, 2013).

The following section presents the basic model: Section 3 provides the key results, and Section 4 concludes.

2. The model

We consider a simple static two-country monetary union model mainly based on Uhlig (2003) and on Andersen (2005, 2008). The model is a static representation of a reduced-form New Keynesian model based on an aggregate demand and a Phillips curve equation. This model constitutes a first-order approximation to a dynamic general equilibrium model with monopolistic competition and nominal rigidities (see, e.g., Gali, 2008). The static representation provides analytical results, which make the policy transmission mechanisms tractable and the study of the corresponding interactions manageable. This proves particularly useful in policy games, where a relatively simple analytical framework is required to allow comparisons of different solution concepts without resorting to numerical simulations.[3] The aggregate demand and the Phillips curve equations in country j are specified as follows:

$$y_j = -\delta_r\left(i - \pi_j^e\right) + \delta_g g_j + u_j \tag{1}$$

$$\pi_j = \omega_y y_j + \omega_g g_j - \varepsilon_j, \tag{2}$$

where $j = (l,f)$ for the leader (l) and the follower (f) fiscal authority, respectively. All variables represent log-deviations from equilibrium values, apart from the decimal nominal interest rate, i. The variables π and y represent the inflation and the output gap, respectively, while g represents fiscal policy, captured by the overall fiscal stance. All parameters are positive apart from ω_g, which can be either positive or negative. The coefficient δ_r captures the real interest elasticity of aggregate demand, and δ_g captures the fiscal multiplier, i.e., the effectiveness of fiscal policy. The positive sign of the fiscal multiplier is typical in the literature and is justified by the static Keynesian framework adopted, as we are interested in short-run stabilization policies. Oros and Zimmer (2015) consider a fiscal multiplier less than unity because of crowding-out effects.

The Phillips curve (Eq. (2)) allows fiscal policy to directly affect inflation by a parameter ω_g, and its sign captures the nature of fiscal policy.

[1] Larsson (2012) considers a four-stage game by including also a fiscal authority.

[2] The fiscal leadership regime remains, as the national fiscal authorities still lead the game with the monetary authority.

[3] For DSGE models that study transitional dynamics and impulse responses in monetary unions through numerical simulations, see Beetsma and Jensen (2005) and Gali and Monacelli (2008), among others.